

We claim

1. A composition comprising:

from 0.2 to 5 percent by weight of a peroxide which decomposes by at most fifty percent by weight of said peroxide within 10 hours at a temperature of at least 75 °C,

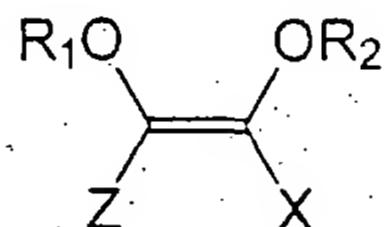
from 0.2 to 3 percent by weight of a metal containing material,

from 0.1 to 3 percent by weight of a protected reducing agent in inactive form, said protected reducing agent being adapted to form an active reducing agent,

from 0 to 1 percent by weight of an amine

said peroxide being stored for at least 24 hours at from 0°C to 40°C and from 0 percent to 100 percent humidity.

2. The composition of claim 1 wherein said protected reducing agent is characterized by the following structure



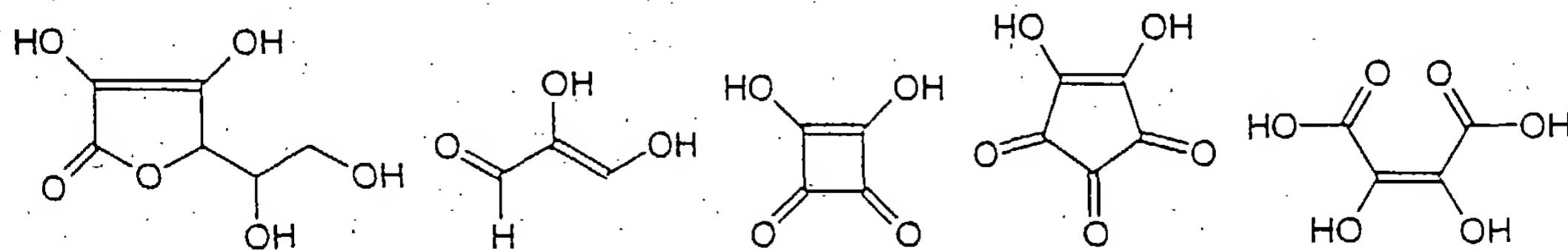
wherein

R₁ is H or a substituted or unsubstituted alkyl having from 1 to 18 carbon atoms, substituted or unsubstituted acylalkyl having from 2 to 18 carbon atoms, substituted or unsubstituted cycloalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted acylcycloalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted arylalkyl having from 5 to 18 carbon atoms or substituted or unsubstituted heteroarylalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted acylarylalkyl having from 5 to 18 carbon atoms or substituted or unsubstituted acylheteroarylalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted alkenyl arylalkyl having from 7 to 30 carbon atoms, substituted or unsubstituted acylalkenyl arylalkyl having from 7 to 30 carbon atoms, or Si(R₅)₃, wherein R₅ is substituted or unsubstituted alkyl having from 1 to 18 carbon atoms, substituted or unsubstituted cycloalkenyl having from 5 to 18 carbon atoms, substituted or unsubstituted arylalkyl having from 6 to 18 carbon atoms, substituted or unsubstituted alkenyl arylalkyl having from 7 to 30 carbon atoms,

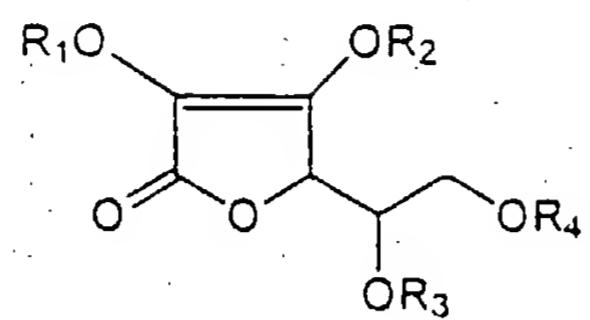
R_2 is a substituted or unsubstituted alkyl having from 1 to 18 carbon atoms, substituted or unsubstituted having from 2 to 18 carbon atoms acylalkyl, substituted or unsubstituted cycloalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted acylcycloalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted arylalkyl having from 5 to 18 carbon atoms or substituted or unsubstituted heteroarylalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted acylarylalkyl having from 5 to 18 carbon atoms or substituted or unsubstituted acylheteroarylalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted alkenyl arylalkyl having from 7 to 30 carbon atoms, substituted or unsubstituted acylalkenyl arylalkyl having from 7 to 30 carbon atoms, or $\text{Si}(R_5)_3$, wherein R_5 is substituted or unsubstituted alkyl having from 1 to 18 carbon atoms, substituted or unsubstituted cycloalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted arylalkyl having from 6 to 18 carbon atoms, substituted or unsubstituted alkenyl arylalkyl having from 7 to 30 carbon atoms,

X and Z are substituted or unsubstituted alkyl having from 1 to 18 carbon atoms, substituted or unsubstituted acylalkyl having from 1 to 18 carbon atoms, substituted or unsubstituted cycloalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted acylcycloalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted arylalkyl having from 5 to 18 carbon atoms or substituted or unsubstituted heteroarylalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted acylarylalkyl having from 5 to 18 carbon atoms or substituted or unsubstituted acylheteroarylalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted alkenyl arylalkyl having from 7 to 30 carbon atoms, substituted or unsubstituted acylalkenyl arylalkyl having from 7 to 30 carbon atoms.

3. The composition of claim 1 wherein said protected reducing agent is obtained by chemical modification of ascorbic acid, 2,3-dihydroxy propenal, squaric acid, 1,2-dihydroxy cyclopent-3,4,5-trion, dihydroxyfumaric acid or their derivatives.



4. The composition of claim 1 wherein said protected reducing agent is characterized by the following structure



wherein the residues

R₁ is hydrogen atom, substituted or unsubstituted alkyl having from 1 to 18 carbon atoms, substituted or unsubstituted acylalkyl having from 1 to 18 carbon atoms, substituted or unsubstituted cycloalkyl having from 1 to 18 carbon atoms, substituted or unsubstituted acylcycloalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted arylalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted heteroarylalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted acylarylalkyl having from 5 to 18 carbon atoms or substituted or unsubstituted acylheteroarylalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted alkenyl arylalkyl having from 7 to 30 carbon atoms, substituted or unsubstituted acylalkenyl arylalkyl having from 7 to 30 carbon atoms, or Si(R₅)₃, wherein R₅ is substituted or unsubstituted alkyl having from 1 to 18 carbon atoms, substituted or unsubstituted cycloalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted arylalkyl having from 6 to 18 carbon atoms, substituted or unsubstituted alkenyl arylalkyl having from 7 to 30 carbon atoms and

R₂, R₃ are R₄ are substituted or unsubstituted alkyl having from 1 to 18 carbon atoms, substituted or unsubstituted acylalkyl having from 1 to 18 carbon atoms, substituted or unsubstituted cycloalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted acylcycloalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted arylalkyl having from 5 to 18 carbon atoms or substituted or unsubstituted heteroarylalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted acylarylalkyl having from 5 to 18 carbon atoms or substituted or unsubstituted acylheteroarylalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted alkenyl arylalkyl having from 7 to 30 carbon atoms, substituted or unsubstituted acylalkenyl arylalkyl having from 7 to 30 carbon atoms, or Si(R₅)₃, wherein R₅ is substituted or unsubstituted alkyl having from 1 to 18 carbon atoms, substituted or unsubstituted cycloalkyl having from 5 to 18 carbon atoms, substituted or unsubstituted arylalkyl having from 6 to 18 carbon atoms, substituted or unsubstituted alkenyl arylalkyl having from 7 to 30 carbon atoms.

5. The composition of claim 1 wherein said protected reducing agent is modified by acetalisation, silylation, esterification, etherification in this manner, that these protecting groups are removable under acid or basic conditions.
6. The composition of claim 1 wherein said peroxide is a diacyl peroxide, a perester, a perketale, a peroxy dicarbonate, a dialkyl peroxide, a ketone peroxide or a alkyl hydroperoxide.
7. The composition of claim 1 wherein said peroxide is selected from the group consisting of 2,5-dimethyl-2,5-di(benzoylperoxy)hexane, tert.-butylamyl peroxide, di-(tert.-butyl) peroxide, cumen hydro peroxide, tert.-butylhydro peroxide, tert.-butyl-peroxy-(3,5,5-trimethyl hexanoate), tert.-butylperoxy benzoate and tert.-butylperoxy-2-ethylhexyl carbonate.
8. The composition of claim 1 wherein said amine is a alkyl aryl amine, a dialkyl aryl amine or a trialkyl amine.
9. The composition of claim 1 comprising said amine in a content from 0 to 1 percent by weight, preferably in a content from 0.001 to 0.5 percent by weight, most preferably in a content from 0.01 to 0.2 percent by weight.
10. The composition of claim 1 wherein said metal containing material is a salt of a metal or an organo-metalic compound.
11. The composition of claim 1 wherein said metal of said metal containing material is selected from the group consisting of copper, silver, cerium, iron, chromium, nickel, vanadium and manganese.
12. The composition of claim 1 wherein said metal containing material is a acetate, salicylate, naphenoate, thiourea complex, acetylacetone or ethylene tetramine acidic acid.
13. The composition of claim 1 wherein said inactive protected reducing agent forms an active reducing agent under acidic conditions of pH less than 6.

14. The composition of claim 1 wherein said inactive protected reducing agent forms an active reducing agent under basic conditions of pH more than 8.

15. The composition of claim 1 wherein said peroxide is stored for at least 3 months.

16. The composition of claim 1 wherein said peroxide is stored for at least 6 months.